UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/065,879	11/27/2002	Christopher A. Newton	BUR920010144	5280

30449 7590 04/13/2004

SCHMEISER, OLSEN + WATTS
SUITE 201
3 LEAR JET
LATHAM, NY 12033

EXAMINER	
LUND, JEFFRIE ROBERT	

ART UNIT	PAPER NUMBER
1763	

DATE MAILED: 04/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/065,879	NEWTON ET AL.	
	Examiner	Art Unit	
	Jeffrie R. Lund	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-17,19 and 20* is/are pending in the application.

4a) Of the above claim(s) *13-16* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-12,17,19 and 20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 November 2002* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: *pages from specification*.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I, claims 1-12 and 17-20 in Paper No. 03/15/2004 is acknowledged. The traversal is on the ground(s) that all the claims could be searched without undo burden. This is not found persuasive because to search the method claims requires a completely different search, and how the art and case law is applied in rejections is completely different, thus requiring the examiner to conduct two distinct prosecutions one for the apparatus claims and one for the method claims.

The requirement is still deemed proper and is therefore made FINAL.

Drawings

2. The proposed drawing corrections were received on March 15, 2004. These drawings are approved by the examiner. The examiner has dropped the objections corrected in the drawings.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: θ_1 of figure 5, and θ_2 of figure 6B. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: all of the various angles labeled “angle I” in all of its various forms. A

proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

5. A substitute specification excluding the claims is required pursuant to 37 CFR 1.125(a) because of numerous typographical errors. The typographical errors are found throughout the specification and on most pages. The typographic errors appear to be related to special symbols (a few examples of this can be found in paragraph 0029 "100A°C or "58a,,<<", in paragraph 0037 line 11, in paragraph 0041, in paragraph 0044 lines 11-13, in paragraph 0047, in the equations of paragraph 0059 and 0060)

A substitute specification filed under 37 CFR 1.125(a) must only contain subject matter from the original specification and any previously entered amendment under 37 CFR 1.121. If the substitute specification contains additional subject matter not of record, the substitute specification must be filed under 37 CFR 1.125(b) and (c).

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 depends on claim 2 that has been canceled.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 1, 3, 5-7, 9-12, 17, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitani et al, JP 3-281780, in view of Deacon et al, US Patent 5,792,269.

Mitani et al teaches an apparatus that includes a chamber 15 adapted for holding a workpiece having a surface layer; a gas distribution plate 112 with a first plurality of channels with a first angle of 90 degrees in a first groove 22 for providing a first fluid to the chamber and a second plurality of channels with a second angle of 90 degrees in a second groove 23 for providing a second fluid to the chamber. The channels are arranged in rings around a common center point of the distribution plate. The workpiece is separated from the gas distribution plate a distance of 3/16 to 9/16 of an inch. The rings have a diameter of more than 1.75 inches to about 7.04 inches. The grooves have a greater volume than the channels. The channels are arranged in a circle. (Figures 1 and 2 and throughout the specification, specifically, working example 1)

Mitani et al differs from the present invention in that Mitani et al does not teach an angle of 45 to less than 90 degrees, an annular ring constricting the exhaust gases

between the ring's edge and the wall of the chamber, the size of the constriction, and the type of gas supplied to each channel.

Deacon et al teaches channels 41 that are angled at 72 degrees, and includes an annular ring (baffle plate) constricting the exhaust gases between the ring's edge and the wall of the chamber.

The motivation for angling the channels of Mitani et al is to improve step coverage as taught by Deacon et al. The motivation for adding the annular ring is to improve the uniformity of the exhaust gas flow by providing a restricted area that equalizes the suction applied by the vacuum pump to the chamber. The motivation for making the constriction at least 3/8 of an inch is to optimize size of the constriction. Furthermore, it was held in *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984), by the Federal Circuit that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. (Also see MPEP 2144.04 (d)) The motivation for supplying a specific gas to each channel is to deposit a specific layer.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to angle the channel of Mitani et al, and add the annular constricting ring of the correct size to the apparatus of Mitani et al, as taught by Deacon et al, and to supply the desired process gases to deposit the desired layer.

10. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mitani et al and Deacon et al as applied to claims 1, 3, 5-7, 9-11, 17, 19, and 20 above, and further in view of Plavidal et al, US Patent 5,718,795.

Mitani et al and Deacon et al differs from the present invention in that they do not teach that the dispersion plate is made of polytetrafluoroethylene.

Plavidal et al teaches that the dispersion plate is made of polytetrafluoroethylene (Teflon®) (column 4 lines 48-49).

The motivation for making the dispersion plate out of polytetrafluoroethylene is to provide a material of construction, which is required but not disclosed by Mitani et al and Deacon et al. Polytetrafluoroethylene is well known in the art and is used because it is chemically inert.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the dispersion plate of Mitani et al and Deacon et al out of polytetrafluoroethylene as taught by Plavidal et al.

11. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mitani et al and Deacon et al as applied to claims 1, 3, 5-7, 9-11, 17, 19, and 20 above, and further in view of Hasegawa et al, US Patent 5,837,093.

Mitani et al and Deacon et al differs from the present invention in that they do not teach an annular ring that includes a plurality of holes extending over an exhaust port.

Hasegawa et al teaches an annular ring 29 that includes a plurality of holes 30 extending over an exhaust port 31.

The motivation for adding the annular ring with a plurality of holes of Hasegawa et al in the apparatus of Mitani et al and Deacon et al is to improve the uniformity of the flow across the wafer and to the exhaust port, thereby improving the uniformity of the processed wafer.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to add annular ring of Hasegawa et al to the apparatus of Mitani et al and Deacon et al.

Response to Arguments

12. Applicant's arguments filed March 15, 2004 have been fully considered but they are not persuasive.

In regard to the argument that θ_1 found in figure 5 and θ_2 found in figure 6B can be found in paragraphs 0051, 0052, and 0055 of the specification, the examiner disagrees. The specification as filed with the application does not contain any version of θ at all. As noted above the specification contains a large number of typographical errors that appear to be related to special symbols. The applicant is directed to copies of the paragraphs cited by the examiner and applicant as found in the specification of record, and provided by the examiner.

In regard to the argument directed to the combination of Mitani et al and Deacon et al, specifically, that Mitani et al is directed to forming a planar coating and Deacon et al is directed to step coating, therefore there is no motivation to combine the two references, the examiner disagrees. The apparatus of Mitani et al is limited to only coating flat (planer) wafers. The production apparatus and clean room space is very

expensive. It is not economically feasible to employ a single apparatus for each production step. One of ordinary skill in the art reading Deacon et al would be motivated to angle the holes of Mitani et al as taught by Deacon et al, thus enabling the apparatus of Mitani et al to perform both planar coating and step coating methods.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The cited art teaches the technological background of the invention. The cited art contains patents that could be used to reject the claims under 35 USC § 103. These rejections have not been made because they do not provide any additional or different teachings, and if they were applied, would have resulted in an undue multiplication or references. (See MPEP 707.07(g))

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrie R. Lund whose telephone number is (571) 272-1437. The examiner can normally be reached on Monday-Thursday (6:30 am-6:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on (571) 272-1439. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jeffrie R. Lund
Primary Examiner
Art Unit 1763

JRL
4/7/04